

According to the UN GHS revision 8

Creation Date: May 30, 2026

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1. IDENTIFICATION

1.1 GHS Product identifier

Product name: Thiobencarb

Catalog Number: T20847

CAS Number: 28249-77-6

1.2 Other means of identification

Other names: -

1.3 Recommended use of the chemical and restrictions on use

Identified uses:

1.4 Supplier's details

Company: Targetmol Chemicals Inc.

Address: 34 Washington Street, Wellesley Hills, Massachusetts 02481 USA

Tel/Fax: (781) 999-4286

1.5 Emergency phone number

Emergency phone number: 781-999-4286

Service hours: Monday to Friday, 9am-5pm (Standard timezone: UTC/GMT -5 hours).

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s):



Signal word: Warning

Hazard statement(s):

H302 Harmful if swallowed

H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s):

Prevention:

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

Response:

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P391 Collect spillage.

Storage:

none

Disposal:

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number
Thiobencarb	-	28249-77-6	248-924-5

4. FIRST-AID MEASURES

4.1 Description of necessary first-aid measures

General advice

no data available

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

Skin decontamination: Skin contamination should be treated promptly by washing with soap and water. Contamination of the eyes should be treated immediately by prolonged flushing of the eyes with large amounts of clean water. If dermal or ocular irritation persists, medical attention should be obtained without delay.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Inhalation of material may be harmful. Contact may cause burns to skin and eyes. Inhalation of Asbestos dust may have a damaging effect on the lungs. Fire may produce irritating, corrosive and/or toxic gases. Some liquids produce vapors that may cause dizziness or suffocation. Runoff from fire control may cause pollution. (ERG, 2016)

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: SMALL FIRE: Dry chemical, CO₂, water spray or regular foam. LARGE FIRE: Water spray, fog or regular foam. Do not scatter spilled material with high-pressure water streams. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal. FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. (ERG, 2016)

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Some may burn but none ignite readily. Containers may explode when heated. Some may be transported hot. For UN3508, be aware of possible short circuiting as this product is transported in a charged state. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Do not contaminate /downstream/ water when disposing of equipment washwaters. Bolero 8 EC Herbicide

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Do not contaminate water, food or feed by storage ... Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Store in cool, dry place. Protect from excessive heat. Bolero 8 EC Herbicide

Pure form: -20°C for 3 years | In solvent: -80°C for 1 year

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Solid
Color	no data available
Odour	Slight aromatic odor
Melting point/freezing point	3.3°C
Boiling point or initial boiling point and boiling range	126-129°C
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available

Flash point	165.8°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	H2O: 30mg/L(22 oC),Sonication and heating to 60? are recommended. DMSO: 60 mg/mL (232.76 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
N-octanol-water partition coefficient	log Kow = 3.40
Vapour pressure	4.38E-05mmHg at 25°C
Density and/or relative density	1.0756 g/cm3 (Estimated)
Relative vapour density	no data available
Particle characteristics	no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Thio and dithiocarbamates slowly decompose in aqueous solution to form carbon disulfide and methylamine or other amines. Such decompositions are accelerated by acids.

10.2 Chemical stability

Stable under acid and moderately alkaline conditions.

10.3 Possibility of hazardous reactions

THIOBENCARB is a thiocarbamate. Flammable gases are generated by the combination of thiocarbamates and dithiocarbamates with aldehydes, nitrides, and hydrides. Thiocarbamates and dithiocarbamates are incompatible with acids, peroxides, and acid halides.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of /hydrogen chloride, nitrogen oxides, and sulfur oxides/.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral: LD50 Rat oral 1300 mg/kg

Inhalation: LC50 Rat inhalation > 42.8 mg/L (1 hour)

Dermal: LD50 Rat percutaneous 2900 mg/kg

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Cancer Classification: Group D Not Classifiable as to Human Carcinogenicity

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill) weight 0.6 g; Conditions: static bioassay without aeration, 20 deg C, pH 7.2-7.5, water hardness 40-50 mg/L as calcium carbonate and alkalinity of 30-35 mg/L. Concentration: 2.5 mg/L for 96 hr /95% confidence interval 1.7-3.7 mg/L) wt 0.6 g in a /liquid 95.5%

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (Water Flea) age <24 hr; Conditions: freshwater, flow through; Concentration: 9 ug/L for 21 days (95% confidence interval: 5-15 ug/L); Effect: intoxication, immobilization /95% purity formulation

Toxicity to algae: EC50; Species: *Chlorella vulgaris* (Green Algae) 1X10⁴ cells/mL, CCAP 211/11B; Conditions: freshwater, static, 25-28 deg C; Concentration: 3277 ug/L for 72 hr (95% confidence interval: 2565-4185 ug/L); Effect: population changes, general /99.5% purity

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: In soil studies, (14)C-benethiocarb was degraded to about 20 compounds detectable by TLC. In addition to unchanged benthocarb, desethyl benthocarb, benthocarb sulfoxide, 4-chlorobenzoic acid, 2-hydroxybenthocarb, 4-chlorobenzyl methyl sulfone, 4-chlorobenzyl methyl sulfoxide, and 4-chlorobenzyl alcohol, were observed. Under oxidative conditions, benthocarb was rapidly degraded and (14)CO₂ was released from (14)C ring-labeled benthocarb. Degradation was much slower under reductive flooded conditions.

12.3 Bioaccumulative potential

Using a continuous-flow water system and a 14-day exposure period, a thiobencarb BCF of 170 was measured in a freshwater fish (topmouth gudgeon, *Pseudorasbora parva*)(1). Using a continuous-flow water system and a 14 day exposure period, a thiobencarb BCF of 66 was measured in a freshwater fish (willow shiner, *Gnathopogon caeruleus*)(2). Average BCFs of 209 and 523 were calculated for pale chub (*Zacco platypus*) and ayu sweetfish (*Plecoglossus altivelis*), respectively, collected from Japanese rivers by measuring the water concentration and the concentration in fish(3). Thiobencarb residues accumulated in juvenile bluegill sunfish (*Lepomis macrochirus*) exposed to 14C-thiobencarb at 0.05 mg/L, with maximum bioconcentration factors of 128, 639, and 411 for edible (muscle) tissue, nonedible tissue, and whole fish, respectively(4); by day 3 of the depuration period, 93-95% of the accumulated 14C residues were eliminated from the tissues(4). Pale chub, ayu sweetfish, and dark chub (*Zacco temminckii*) collected in rivers flowing into Lake Biwa, Japan between 1992-1994 had field BCFs of 68, 56, and 248, respectively(5). Willow shiner, topmouth gudgeon, and killifish (*Pryzias latipes*) had laboratory BCFs of 65, 170 and 382, respectively(5). In a laboratory experiment, /bighead carp/ *Aristichthys nobilis* had BCFs of 714 and 1772 (calculated using homogenized tissue) for initial thiobencarb concentration of 88 and 9 umol/L, respectively(6). According to a classification scheme(7), these BCFs suggest the potential for bioconcentration in aquatic organisms is moderate to high (SRC).

12.4 Mobility in soil

Koc values of 309 and 1043 were measured for thiobencarb in two Japanese soils (respective organic carbon contents of 1.35 and 4.24%)(1). The US Dept of Agric's Pesticide Properties Database has selected a recommended thiobencarb Koc value of 900 based on multiple reported Koc values(2). An average Koc of 5000 was measured in four different soil types (organic carbon content of 0.2-6.8%)(3). Using three Florida soils, Koc values of 765, 539 and 1195 were measured in Pahokee muck (48.6% organic carbon), Everglades muck (34.1% organic carbon) and Immokalee sand (1.1% organic carbon) respectively(4). According to a suggested classification scheme(5), Koc values ranging from 309-5000 suggest that thiobencarb is expected to have moderate to slight mobility in soil. In laboratory and greenhouse mobility studies using these soils, more than 93% of all applied thiobencarb remained in the upper 1 cm after leaching during unsaturated flow(6). In lysimeter leaching studies using a mineral alluvial soil and a humic volcanic ash soil, thiobencarb did not leach below the 15 cm level(7); greater than 60% of applied thiobencarb remained in the upper 5 cm level(7). In greenhouse studies using flooded Australian rice growing soils, 65-70% of applied thiobencarb was recovered from the 0-1 cm layer of soil while less than 2% was recovered from each layer down to 10 cm(8). A field study in a paddy in India found that no leaching or percolation of thiobencarb occurred from the 6-12 inch soil layer(9).

12.5 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. TRANSPORT INFORMATION

14.1 UN Number

no data available

14.2 UN Proper Shipping Name

no data available

14.3 Transport hazard class(es)

no data available

14.4 Packing group, if applicable

no data available

14.5 Environmental hazards

no data available

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)	Listed.
EC Inventory	Listed.
United States Toxic Substances Control Act (TSCA) Inventory	Not Listed.
China Catalog of Hazardous chemicals 2015	Not Listed.
New Zealand Inventory of Chemicals (NZIoC)	Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

16. OTHER INFORMATION

Information on revision

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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

no data available

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